

We claim:

- 1 1. Radiation-emitting semiconductor component having a semiconductor body (1), which  
2 has an active zone (2),  
3 in which, for the purpose of electrical contact connection, a patterned contact layer (3) is  
4 applied on a surface of the semiconductor body,  
5 interspaces (4) distributed over the contact layer (3) being provided for the purpose of  
6 forming free areas (5) on the surface which are not covered by the contact layer (3), in which  
7 free areas (5) are covered with a mirror (6).
- 1 2. Component according to Claim 1, in which the mirror (6) is embodied as a closed mirror  
2 layer (7) covering the free areas (5) and the contact layer (3).
- 1 3. Component according to Claim 2, in which the material of the contact layer (3) links  
2 electrically better to the semiconductor body (1) than the material of the mirror layer (7).
- 1 4. Component according to Claim 2, in which the material of the mirror layer (7) reflects the  
2 radiation generated in the active zone (2) better than the material of the contact layer (3).
- 1 5. Component according to Claim 1, in which the surface of the semiconductor body (1) is  
2 formed by a p-doped layer (8) made of a nitride compound semiconductor,  
3 - and in which the material of the contact layer (3) forms an ohmic contact with respect to  
4 the surface.
- 1 6. Component according to Claim 1, in which the contact layer (3) contains platinum or  
2 nickel.
- 1 7. Component according to Claim 2, in which the mirror layer (7) contains silver or  
2 aluminium.

1 8. Component according to Claim 1, in which the contact layer (3) has a thickness (d) which  
2 is less than 100 nm.

1 9. Component according to Claim 1, in which the contact layer (3) comprises contact  
2 elements (9) that are separated from one another,  
3 and in which a connecting layer (10) for making contact among the contact elements (9)  
4 is provided on the contact layer (3).

1 10. Component according to Claim 9, in which the contact elements (9) have the form of  
2 cylinders.

1 11. Component according to Claim 9, in which the contact elements (9) are arranged at the  
2 nodes of a regular grid.

1 12. Component according to Claim 11, in which the regular grid is a square grid.

1 13. Component according to Claim 9, in which the distances (D1, D2) between the contact  
2 elements (9) are chosen taking account of the transverse conductivity of the p-doped layer (8)  
3 such that the semiconductor body's interface (11) of the p-doped layer (8) can be energized over  
4 the whole area.

1 14. Component according to Claim 11, in which the form of the regular grid is chosen such  
2 that, when the interface (11) is energized over the whole area, the result is a coverage of the  
3 surface of the semiconductor body (1) with the contact layer (3) which is smaller than the  
4 coverage when a square grid is used.

1 15. Component according to Claim 14, in which the regular grid is a hexagonal grid.

- 1 16. Component according to Claim 1, in which interspaces (4) are filled with a filler (12) in  
2 order to at least partially planarize the surface of the patterned contact layer (3).
- 1 17. Component according to Claim 16, in which the filler (12) contains an electrically  
2 conductive material.
- 1 18. Component according to Claim 16, in which the filler (12) contains a transparent and  
2 electrically insulating material.
- 1 19. Component according to Claim 17, in which the filler (12) contains zinc oxide or indium  
2 tin oxide.
- 1 20. Component according to Claim 18, in which the filler (12) contains SiO<sub>2</sub>, a compound  
2 made of silicon and nitrogen or titanium oxide or plastic.
- 1 21. Component according to Claim 16, in which the filler (12) forms Bragg reflectors (13).
- 1 22. Component according to Claim 21, in which the Bragg reflectors (13) are produced from  
2 dielectrics.
- 1 23. Component according to Claim 21, in which the Bragg reflectors (13) are produced by  
2 epitaxy.
- 1 24. Component according to Claim 1, in which the mirror (6) is formed by Bragg reflectors  
2 (13) arranged in the interspaces (4) of the contact layer (3).
- 1 25. Component according to Claim 24, in which the Bragg reflectors (13) contain layer pairs  
2 (14) lying one on top of the other, of which respectively one has a high refractive index and one  
3 has a low refractive index,

- 4            and in which a number greater than 5 of layer pairs (14) are provided in each Bragg  
5 reflector (13).